CATION PUBLISHED UNDER THE PATENT CO **ERATION TREATY (PCT)** 

## REVISED VERSION

## (19) World Intellectual Property Organization

(12) INTERNATIONAL A

International Bureau



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(43) International Publication Date 18 December 2003 (18.12.2003)

**PCT** 

(10) International Publication Number WO 2003/103653 A1

- (51) International Patent Classification7: A61K 31/165, A61P 25/28
- (21) International Application Number:

PCT/US2003/018517

- (22) International Filing Date: 11 June 2003 (11.06.2003)
- (25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

60/387,880

11 June 2002 (11.06.2002) US

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- (72) Inventors; and
- (75) Inventors/Applicants (for US only): JOHN, Varghese [US/US]; 1722 18th Avenue, San Fransisco, CA 94112 (US). MAILLARD, Michel [US/US]; 219 Shorebird Circle, Redwood Shores, CA 94065 (US).
- (74) Agent: SINGER, Christopher, P.; McDonnell Boehnen Hulbert & Berghoff, Suite 3200, 300 South Wacker Drive, Chicagi, IL 60606 (US).

- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

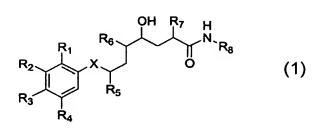
#### Published:

- with international search report
- (88) Date of publication of the revised international search 29 April 2004 report:
- (15) Information about Correction:

see PCT Gazette No. 18/2004 of 29 April 2004, Section II

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

### (54) Title: METHODS OF TREATING ALZHEIMER'S DISEASE USING ARYL ALKANOIC ACID AMIDES



Disclosed are methods for treating (57) Abstract: Alzheimer's disease, and other diseases, and/or inhibiting beta-secretase enzyme, and/or inhibiting deposition of A beta peptide in a mammal, by use of compounds of formula (1) wherein the variables  $R_1$ - $R_8$  and X are defined herein.





# DOCKETED

OCT 0 7 2003

## From the INTERNATIONAL SEARCHING AUTHORITY

To:
McDONNELL BOEHNEN HULBERT
& BERGHOFF
Attn. Singer, Christopher P.
300 South Wacker Drive, Suite 3200
Chicago, IL 60606
UNITED STATES OF AMERICA

PCTDUE DATE: 12-6-03

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT 1-6-04
OR THE DECLARATION

(PCT Rule 44.1)

	Date of mailing (day/month/year) 06/10/2003
Applicant's or agent's file reference 02-414-A	FOR FURTHER ACTION See paragraphs 1 and 4 below
International application No. PCT/US 03/ 18517	International filing date (day/month/year) 11/06/2003
Applicant	1
ELAN PHARMACEUTICALS	5 87
The applicant is hereby notified that the International Search Filing of amendments and statement under Article 19: The applicant is entitled, if he so wishes, to amend the claim When? The time limit for filing such amendments is normal international Search Report; however, for more definitely to the international Bureau of WIPO 34, chemin des Colombettes	ns of the International Application (see Rule 46):
1211 Geneva 20, Switzerland Fascimile No.: (41–22) 740.14.35  For more detailed instructions, see the notes on the account.	
2. The applicant is hereby notified that no International Searc Article 17(2)(a) to that effect is transmitted herewith.	h Report will be established and that the declaration under
3. With regard to the protest against payment of (an) addition	onal fee(s) under Rule 40.2, the applicant is notified that:
the protest together with the decision thereon has been applicant's request to forward the texts of both the pro	en transmitted to the International Bureau together with the otest and the decision thereon to the designated Offices.
no decision has been made yet on the protest; the ap	plicant will be notified as soon as a decision is made.
4. Further action(s): The applicant is reminded of the following:	
Shortly after 18 months from the priority date, the international a If the applicant wishes to avoid or postpone publication, a notic priority claim, must reach the International Bureau as provided completion of the technical preparations for international public	tin Rules 90 <i>bis</i> .1 and 90 <i>bis</i> .3, respectively, before the cation.
Within 19 months from the priority date, a demand for internatio wishes to postpone the entry into the national phase until 30 m	ionths from the priority date (iii some Offices even later).
Within 20 months from the priority date, the applicant must perform all designated Offices which have not been elected in priority date or could not be elected because they are not bour	ne demand of in a later election within 19 months from the

Authorized officer

Natalia Morancho Alcaine

Name and mailing address of the International Searching Authority

NL-2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,

Fax: (+31-70) 340-3016

European Patent Office, P.B. 5818 Patentlaan 2

These Notes are intended to give the basic instructions concerning the filing of amendments under article 19. The Notes are based on the requirements of the Patent Cooperation Treaty, the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the PCT Applicant's Guide, a publication of WIPO.

In these Notes, "Article", "Rule", and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions respectively.

### INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international pbulication. Furthermore, it should be emphasized that provisional protection is available in some States only.

### What parts of the international application may be amended?

Under Article 19, only the claims may be amended.

During the international phase, the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority. The description and drawings may only be amended under Article 34 before the International Examining Authority.

Upon entry into the national phase, all parts of the international application may be amended under Article 28 or, where applicable, Article 41.

### When?

Within 2 months from the date of transmittal of the international search report or 16 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46.1).

### Where not to file the amendments?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been is filed, see below.

### How?

Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Administrative Instructions, Section 205(b)).

The amendments must be made in the language in which the international application is to be published.

#### What documents must/may accompany the amendments?

Letter (Section 205(b)):

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confused with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

The letter must be in English or French, at the choice of the applicant. However, if the language of the international application is English, the letter must be in English; if the language of the international application is French, the letter must be in French.

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The letter must indicate the differences between the claims as filed and the claims as amended. It must, in particular, indicate, in connection with each claim appearing in the international application (it being understood that identical indications concerning several claims may be grouped), whether

- (i) the claim is unchanged;
- (ii) the claim is cancelled;
- (iii) the claim is new;
- (iv) the claim replaces one or more claims as filed;
- (v) the claim is the result of the division of a claim as filed.

# The following examples illustrate the manner in which amendments must be explained in the accompanying letter:

- [Where originally there were 48 claims and after amendment of some claims there are 51]:
   "Claims 1 to 29, 31, 32, 34, 35, 37 to 48 replaced by amended claims bearing the same numbers; claims 30, 33 and 36 unchanged; new claims 49 to 51 added."
- [Where originally there were 15 claims and after amendment of all claims there are 11]: "Claims 1 to 15 replaced by amended claims 1 to 11."
- [Where originally there were 14 claims and the amendments consist in cancelling some claims and in adding new claims]:
   "Claims 1 to 6 and 14 unchanged; claims 7 to 13 cancelled; new claims 15, 16 and 17 added." or
   "Claims 7 to 13 cancelled; new claims 15, 16 and 17 added; all other claims unchanged."
- 4. [Where various kinds of amendments are made]: "Claims 1-10 unchanged; claims 11 to 13, 18 and 19 cancelled; claims 14, 15 and 16 replaced by amended claim 14; claim 17 subdivided into amended claims 15, 16 and 17; new claims 20 and 21 added."

#### "Statement under article 19(1)" (Rule 46.4)

The amendments may be accompanied by a statement explaining the amendments and indicating any impact that such amendments might have on the description and the drawings (which cannot be amended under Article 19(1)).

The statement will be published with the international application and the amended claims.

## It must be in the language in which the international appplication is to be published.

It must be brief, not exceeding 500 words if in English or if translated into English.

It should not be confused with and does not replace the letter indicating the differences between the claims as filed and as amended. It must be filed on a separate sheet and must be identified as such by a heading, preferably by using the words "Statement under Article 19(1)."

It may not contain any disparaging comments on the international search report or the relevance of citations contained in that report. Reference to citations, relevant to a given claim, contained in the international search report may be made only in connection with an amendment of that claim.

### Consequence if a demand for international preliminary examination has already been filed

If, at the time of filing any amendments under Article 19, a demand for international preliminary examination has already been submitted, the applicant must preferably, at the same time of filing the amendments with the International Bureau, also file a copy of such amendments with the International Preliminary Examining Authority (see Rule 62.2(a), first sentence).

### Consequence with regard to translation of the international application for entry into the national phase

The applicant's attention is drawn to the fact that, where upon entry into the national phase, a translation of the claims as amended under Article 19 may have to be furnished to the designated/elected Offices, instead of, or in addition to, the translation of the claims as filed.

For further details on the requirements of each designated/elected Office, see Volume II of the PCT Applicant's Guide.



(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 02-414-A	FOR FURTHER see Notification of (Form PCT/ISA/2) ACTION	f Transmittal of International Search Report 20) as well as, where applicable, item 5 below.
International application No.	International filing date (day/month/year)	(Earliest) Priority Date (day/month/year)
PCT/US 03/18517	11/06/2003	11/06/2002
Applicant  ELAN PHARMACEUTICALS		
according to Article 18. A copy is being tr  This International Search Report consists	_	
X it is also accompanies by		
Basis of the report     With regard to the language, the	international search was carried out on the balless otherwise indicated under this item.	sis of the international application in the
	vas carried out on the basis of a translation of t	the international application furnished to this
was carried out on the basis of the contained in the internation of the filed together with the internation of the statement that the subsequently to the statement that the substant international application the statement that the infurnished	ne sequence listing:  onal application in written form.  ernational application in computer readable for  o this Authority in written form.  o this Authority in computer readble form.  absequently furnished written sequence listing of  as filed has been furnished.  formation recorded in computer readable form	
2. X Certain claims were for 3. Unity of invention is la	und unsearchable (See Box I). cking (see Box II).	
	submitted by the applicant. Ished by this Authority to read as follows:	
the text has been estable within one month from the	ne date of mailing of this international search re	rity as it appears in Box III. The applicant may, eport, submit comments to this Authority.
as suggested by the applicant fa	blished with the abstract is Figure No.  blicant.  ailed to suggest a figure.  er characterizes the invention.	None of the figures.

# A CLASSIFICATION OF SUBJECT MATTER 1PC 7 A61K31/165 A61P25/28

C. DOCUMENTS CONSIDERED TO BE RELEVANT

According to International Patent Classification (IPC) or to both national classification and IPC

### B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols) IPC 7 A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, CHEM ABS Data, WPI Data, BIOSIS, EMBASE

Category *	Citation of document, with indication, where appropriate, of the	ne relevant passages	Relevant to claim No.
X	US 5 559 111 A (YAMAGUCHI YASU AL) 24 September 1996 (1996-09	JCHIKA ET 9-24)	28 <sup>-</sup>
γ	the whole document abstract		1-27
X	EP 0 678 514 A (CIBA GEIGY AG) 25 October 1995 (1995-10-25)		28
Υ	page 5, line 18 - page 6, line page 6, line 21	2 21	1-27
X	WO 02 02508 A (SPEEDEL PHARMA PETER-(CH); SPINDLER FELIX (CH STEF) 10 January 2002 (2002-01 the whole document	I); STUTZ	28
Y	page 1, line 9	<u>.</u>	1-27
X Funt	ner documents are listed in the continuation of box C.	Z Patent family members are fisted in	ή annex,
° Special ca	tegotias of cited documents:	T later document outsished after the linte	mational filling data
consider of the control of the contr	ent defining the general state of the art which is not leved to be of perficular relevance focument but published on or after the international late of another in or other special reason (as specified) ent referring to an oral disclosure, use, exhibition or means and published prior to the international filing date but the priority date calmed	"I later document published after the interest or priority date and not in conflict with circle to understand the principle or the invention "It document of particular relevance; the carmot be considered novel of carnot be considered novel of carnot be considered to involve an inventive step when the document of particular relevance; the cannot be considered to involve an independent in combined with one or moments, such combination being obvious in the art.  "&" document member of the same patent."	laimed invention the considered to current is taken alone tained invention rentive step when the tre other such docu- us to a person skilled
	actual completion of the international search	Date of mailing of the International sea	
1	2 December 2003	8 6 October 2	003
Name and n	nailing address of the ISA  European Patent Office, P.B. 5819 Patentiaan 2 NL -2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,	Authorized officer	
	Fax: (+31-70) 340-3016	Giacobbe, S	

Interna	ational parcation No	
PCT	03/18517	

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Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Х	WO 01 09083 A (SPEEDEL PHARMA AG; HEROLD PETER (CH); STUTZ STEFAN (CH); INDOLESE ADR) 8 February 2001 (2001-02-08) the whole document	28
Y	page 1, line 17	1-27
X	WO 02 08172 A (SPEEDEL PHARMA AG; HEROLD PETER (CH); STUTZ STEFAN (CH)) 31 January 2002 (2002-01-31) the whole document	28
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X	MEALY, N. E. ET AL: "Aliskiren fumarate" DRUGS OF THE FUTURE, vol. 26, no. 12, 2001, pages 1139-1148, XP0009017211 the whole document	28
Y	ROGGO SILVIO: "Inhibition of BACE, a promising approach to Alzheimer's disease therapy."  CURRENT TOPICS IN MEDICINAL CHEMISTRY., vol. 2, no. 4, April 2002 (2002-04), pages 359-370, XP0009017212  ISSN: 1568-0266 figure 3 page 361, column 2, paragraph 2	1-27
Y	RAHUEL J ET AL: "Structure-based drug design: the discovery of novel nonpeptide orally active inhibitors of human renin." CHEMISTRY & BIOLOGY, vol. 7, no. 7, July 2000 (2000-07), pages 493-504, XP002254255 ISSN: 1074-5521 page 500, column 2, paragraph 2 - page 502, column 1, paragraph 2	1-27
P,X	EP 1 215 201 A (SPEEDEL PHARMA AG) 19 June 2002 (2002-06-19) the whole document	28
P,Y	paragraph '0002!	1-27
P,Y	WO 02 100820 A (UPJOHN CO; ELAN PHARM INC (US); MAILLARD MICHEL (US); TUCKER JOHN ALA) 19 December 2002 (2002-12-19) page 1, line 5 - page 3, line 34	1-27
	-/	

International Accation No
PCT 03/18517

im No.





Box I	Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)
This inte	rnational Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:
1. χ	Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:
	Although claims 1-27 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
2.	Claims Nos.: because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3.	Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).
Box II	Observations where unity of Invention is lacking (Continuation of item 2 of first sheet)
This inte	ernational Searching Authority found multiple inventions in this international application, as follows:
	•
1.	As all required additional search fees were timely paid by the applicant, this international Search Report covers all searchable claims.
2.	As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3.	As only some of the required additional search fees were timely paid by the applicant, this International Search Report
	covers only those claims for which fees were paid, specifically claims Nos.:
4.	No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
_	
Remark	The additional search fees were accompanied by the applicant's protest.  No protest accompanied the payment of additional search fees.
	The protost accompanied the payment of additional search rees.

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